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TITLE: DETERGENT COMPOSITION  
  
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**ABSTRACT:**

**PURPOSE:** To obtain a creamy detergent composition excellent in foaming power and persistency of foam and having good foaming quality without using a foam- increasing agent by using an anionic surfactant whose counter ion is a specific diamine salt.

**CONSTITUTION:** This detergent composition contains an anionic surfactant whose counter ion is a diamine salt expressed by the formula [X1 to X4 are each H or a 1-10C alkyl; A1 and A2 are each H, a 1-3C alkyl or hydroxyl; (m) and (n) is each 0-6]. Furthermore, the surfactant is an alkyl- or alkenylsulfate whose 1-100wt.% counter ion is a diamine salt of the formula, having 10-20 average carbon number, an alkylbenzenesulfonate having average 10-16C alkyl, a sulfosuccinic ester salt of an 8-22C higher alcohol or its ethoxylate or a sulfosuccinic ester salt derived from a higher fatty acid amide and further contains a water-soluble cationic polymer.

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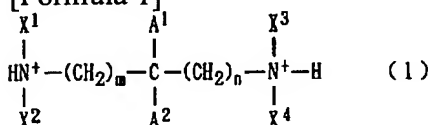
CLAIMS

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[Claim(s)]

[Claim 1] A counter ion is a general formula (1).

[Formula 1]



(-- the inside of a formula, X1, X2, X3, and X4 are the same -- or it differs, a hydrogen atom or the alkyl group of carbon numbers 1-10 is shown, and A1 and A2 are the same -- or it differs, the alkyl group or hydroxyl of a hydrogen atom and carbon numbers 1-3 is shown, and m and n show the number of 0-6 --)  
 -- the cleaning agent constituent containing the anionic surface active agent which is the diamine salt expressed.

[Claim 2] The cleaning agent constituent according to claim 1 whose anionic surface active agent is the diamine salt as which 1 - 100% of the weight of a counter ion is expressed in a general formula (1).

[Claim 3] The alkyl or the alkenyl sulfate in which an anionic surface active agent has the alkyl group or alkenyl radical of (a) average carbon numbers 10-20, (b) It has the alkyl group or alkenyl radical of the straight chain of the average carbon numbers 10-20, or branched chain. An average of 0.5-8-mol ethyleneoxide, propylene oxide, butylene oxide, ethyleneoxide, and propylene oxide to 1 intramolecular by the ratio of 0.1 / 9.9 - 9.9/0.1 Or the alkyl or the alkenyl ethereal sulfate salt which ethyleneoxide and butylene oxide added by the ratio of 0.1 / 9.9 - 9.9/0.1, (c) The straight chain or branched chain alkylbenzene sulfonates which has the alkyl group of the average carbon numbers 10-16, (d) The salt of the higher alcohol of carbon numbers 8-22, or the sulfo succinate of the ethoxy rate, or the salt of the sulfo succinate of the higher-fatty-acid amide origin, (e) The saturation which has the carbon atom of an average of 10-24 in 1 molecule, or an unsaturated fatty acid salt, (f) Alkyl or alkenyl amide ether acetate which has the alkyl group or alkenyl radical of the average carbon numbers 10-20, (g) The alkyl or the alkenyl amide ethereal sulfate salt which has the alkyl group or alkenyl radical of the average carbon numbers 10-20, (h) The N-acylamino acid mold anionic surface active agent which has the acyl group and isolation carboxylic-acid residue of carbon numbers 8-24, (i) Cleaning agent constituent according to claim 1 or 2 which is the salt of the glycolic-acid N-alkylamide sulfate which has the alkyl group or alkenyl radical of the straight chain of the acyl taurine mold anionic surface active agent which has the acyl group of carbon numbers 8-24, or the (j) carbon numbers 8-18, or branched chain.

[Claim 4] Furthermore, the cleaning agent constituent of claim 1-3 containing a water-soluble cation polymer given in any 1 term.

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am quality.

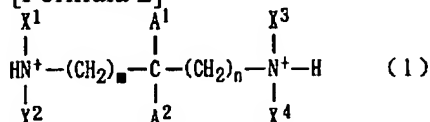
[0005]

[Means for Solving the Problem] In this actual condition, a header and this invention were completed for the cleaning agent constituent which is excellent in foamability and bubble durability, and has creamy and good foam quality even if it will not use a foam increasing agent, if this invention persons use the anionic surface active agent whose counter ion is a specific diamine salt as a result of inquiring wholeheartedly being obtained.

[0006] That is, for this invention, a counter ion is a general formula (1).

[0007]

[Formula 2]



[0008] (-- the inside of a formula, X1, X2, X3, and X4 are the same -- or it differs, a hydrogen atom or the alkyl group of carbon numbers 1-10 is shown, and A1 and A2 are the same -- or it differs, the alkyl group or hydroxyl of a hydrogen atom and carbon numbers 1-3 is shown, and m and n show the number of 0-6 --) -- the cleaning agent constituent containing the anionic surface active agent which is the diamine salt expressed is offered.

[0009] The anionic surface active agent used by this invention is the thing of the diamine salt as which a counter ion is expressed in said general formula (1). What will not be restricted as an anionic surface active agent especially if used for the usual cleaning agent constituent, for example, is shown in following (a) - (l) is mentioned.

[0010] (a) The alkyl or the alkenyl sulfate which has the alkyl group or alkenyl radical of the average carbon numbers 10-20, (b) It has the alkyl group or alkenyl radical of the straight chain of the average carbon numbers 10-20, or branched chain. An average of 0.5-8-mol ethyleneoxide, propylene oxide, butylene oxide, ethyleneoxide, and propylene oxide to 1 intramolecular by the ratio of 0.1 / 9.9 - 9.9/0.1 Or the straight chain which has the alkyl group of the alkyl which ethyleneoxide and butylene oxide added by the ratio of 0.1 / 9.9 - 9.9/0.1 or an alkenyl ethereal sulfate salt, and (c) average carbon numbers 10-16 or branched chain alkylbenzene sulfonates, [0011] (d) the salt of the higher alcohol of carbon numbers 8-22, or the sulfo succinate of the ethoxy rate or the salt of the sulfo succinate of the higher-fatty-acid amide origin, and (e) -- the alkyl which has the alkyl group or alkenyl radical of the alkyl which has the alkyl group or alkenyl radical of the saturation which has the carbon atom of an average of 10-24 in 1 molecule or an unsaturated fatty acid salt, and (f) average carbon numbers 10-20 or alkenyl amide ether acetate, and (g) average carbon numbers 10-20 or an alkenyl amide ethereal sulfate salt and [0012] (h) The N-acylamino acid mold anionic surface active agent which has the acyl group and isolation carboxylic-acid residue of carbon numbers 8-24, (i) The acyl taurine mold anionic surface active agent which has the acyl group of carbon numbers 8-24, (j) The salt of the glycolic-acid N-alkylamide sulfate which has the alkyl group or alkenyl radical of the straight chain of carbon numbers 8-18, or branched chain, (k) Alkane sulfonate which has the carbon atom of an average of 10 - the olefin sulfonate which has the carbon molecule of 20 in 1 molecule and the (l) averages 10-20 in 1 molecule.

[0013] The anionic surface active agent of (a) - (j) is [ among these ] especially desirable. As an example of a more suitable thing, a polyoxyethylene lauryl ethereal sulfate salt (an average of 2-3 mol addition of ethyleneoxides), a lauryl sulfate, a palm-oil-fatty-acid salt, palm-oil-fatty-acid AMAIDO ethersulfate, a lauroyl-N-methyl taurine, the lauroyl-N-methyl-beta-alanine, N-myristoyl-L-glutamine acid chloride, polyoxyethylene lauryl sulfoosuccinate (3-7 mol addition of ethyleneoxides), a glycolic-acid mono-lauryl amidosulfuric acid salt, etc. are mentioned.

[0014] Moreover, these anionic surface active agents require that a counter ion should be the diamine salt expressed with said general formula (1). The inside of a general formula (1), X1, X2, and X3 And X4 As an alkyl group of the carbon numbers 1-10 shown, the alkyl group of the straight chain of carbon

numbers 1-3 or branched chain is desirable, for example, a methyl group, an ethyl group, n-propyl group, an isopropyl group, etc. are mentioned. Moreover, m and n show the number of 0-6, and especially 0-3 are desirable.

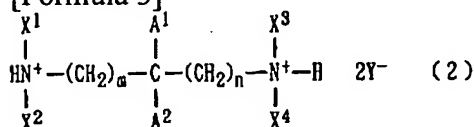
[0015] As for the anionic surface active agent used by this invention, it is desirable that it is the diamine salt of a counter ion as which 20 - 100 % of the weight and further 40 - 100 % of the weight are especially expressed in a general formula (1) one to 100% of the weight.

[0016] As for such an anionic surface active agent, it is desirable to be able to use combining one sort or two sorts or more, and to blend three to 40% of the weight during [ all ] a presentation. As for these loadings, it is desirable to change with gestalten of goods, such as a dilution type, regular type, and concentration type, for example, to blend ten to 30% of the weight especially in a regular type case.

[0017] Moreover, it is not necessary to necessarily blend these anionic surface active agents as a diamine salt whose counter ion is a general formula (1), and the diamine salt expressed in a general formula (2) as the anionic surface active agent which has counter ions other than a diamine salt may be blended independently, counter ion exchange may be performed in a formula system, and that whose counter ion is a diamine salt (1) may be made to form.

[0018]

[Formula 3]



[0019] (X1, X2, X3, X4, A1, A2, and m and n have the same semantics as the above among a formula, and Y shows the anion radical of inorganic nature or organic nature)

[0020] 1f52 A water-soluble cation polymer can be further blended with the cleaning agent constituent of this invention, and, thereby, the feel at the time of a rinse can be raised more to it. Although not restricted, especially as this water-soluble cation polymer, for example JR400 (made in Union Carbide), KACHINARU HC-100K (Toho Chemical Co., Ltd. make), KACHISERO H60 (Kao Corp. make) etc. -- cation-ized cellulosic; -- diaryl quarternary ammonium salt / acrylamide copolymer [, such as MAKOTO 550 (Merck Co. make), ]; -- a gaff -- 4th class-ized polyvinyl-pyrrolidone derivative [, such as coat 755N (product made from GAF), ]; -- RABORUGAMU C-GM (Dainippon Pharmaceutical Co., Ltd. make) etc. -- cation-ized Cyamoposis Gum etc. is mentioned.

[0021] It is desirable to be able to use combining one sort or two sorts or more, and to blend 0.5 to 7% of the weight during [ all ] a presentation, and since these water-soluble cation polymers can raise the feel at the time of a rinse especially, without spoiling the foam formation force if it blends further two to 4% of the weight one to 5% of the weight, they are desirable.

[0022] In the cleaning agent constituent of this invention, amphoteric surface active agents, such as nonionic surface active agent; imidazoline systems, such as other surface active agents, for example, polyoxyethylene alkyl ether, a sugar ester system, a sugar ether system, and a sugar amide system, and a betaine system, can also be used together at arbitration in the range which does not spoil the effectiveness of this invention.

[0023] Furthermore, the component usually used for a cleaning agent can be used together to arbitration as other additives in the range which does not spoil the effectiveness of this invention. For example, conditioning agents, such as moisturizer; cationic surface active agents, such as propylene glycol, a sorbitol, and a glycerol, and a silicone derivative; viscosity controlling agent; pearl-ized agents, such as a carboxyvinyl polymer, methyl cellulose, ethanol, and polyoxyethylene glycol distearate, perfume, coloring matter, an ultraviolet ray absorbent, an antioxidant, a germicide, an anti-inflammatory agent, antiseptics, etc. can be blended.

[0024] The cleaning agent constituent of this invention is manufactured by the conventional method, can be made into pharmaceutical forms, such as the shape of the shape of a paste, gel, a liquid, and a solid, and is suitable as a cleaning agent for the bodies, such as the skin or hair.

[0025]

[Example] Next, this invention is concretely explained in full detail based on an example. However, this invention is not limited to the example shown below.

[0026] Counter ion M of an anionic surface active agent expressed with example 1C12H25OSO3 and M evaluated foaming, bubble durability, and foam quality at the time of being what is shown in Table 1. A result is shown in Table 1.

[0027] (The evaluation approach)

(1) Foaming : about each anionic surface active agent, prepare a dilution water solution 20 times and inject 100ml (40 degrees C of solution temperature) of this solution into a cylinder with a graduation. Subsequently, the impeller was installed into the above-mentioned solution, the volume (ml) of the bubble produced after [ of stirring initiation ] 30 seconds was measured, and it considered as the amount of foaming. From this amount of foaming, foaming was evaluated in accordance with the following criteria.

O : volume of 200ml or more of a bubble.

O : 180ml or more volume of less than 200ml of a bubble.

x: Volume of less than 180ml of a bubble.

[0028] (2) Bubble durability : the volume (ml) of the bubble of a foaming test and 5 minutes after was measured, and the following criteria estimated.

O : volume of 150ml or more of a bubble.

O : 130ml or more volume of less than 150ml of a bubble.

x: Volume of less than 130ml of a bubble.

[0029] (3) Foam quality : ten persons' special panelist estimated the lightness of a bubble, and smoothness.

O : nine or more persons are light and sense that it is smooth.

O : 7-8 persons are light and sense that it is smooth.

x: Less than [ 7 person ] is light and senses that it is smooth.

[0030]

[Table 1]

	本 発 明 品			比 較 品	
	1	2	3	1	2
対イオンM	一般式(1)において、 $X^1=X^2=X^3=X^4=H$ , $A^1=A^2=H$ , $m=n=1$	一般式(1)において、 $X^1=X^2=X^3=X^4=CH_3$ , $A^1=A^2=H$ , $m=n=1$	一般式(1)において、 $X^1=X^2=H$ , $X^3=X^4=CH_3$ , $A^1=A^2=H$ , $m=n=1$	Na	トリエタノール アミン
泡立ち	◎	◎	◎	×	×
泡持続性	◎	◎	◎	○	○
泡質	◎	◎	◎	×	×

[0031] Example 2 (shampoo)

The shampoo of the presentation shown below was manufactured with the conventional method. The obtained shampoo was excellent in foamability and bubble durability, and its bubble was smooth.

[0032]

[Table 2]

(Component) (% of the weight)

Polyoxyethylene lauryl ethereal sulfate Na (EO=3) a 12.0 diamine salt (a general formula (2) -- setting --  $X^1=X^2=X^3=X^4=H$  --)  $A^1=A^2=H$ ,  $m=n=1$ , the thing of  $Y=Cl$  2 Cation-ized cellulose 1 0.3 Silicone emulsion 2 1.0 pH regulator Optimum dose Coloring matter Optimum dose Perfume Optimum dose Water Balance 100.0 1:JR400 (product made from UCC) 2:SM-8702C (Dow Corning Toray Silicone make) [0033] Example 3 (shampoo)

The shampoo of the presentation shown below was manufactured with the conventional method. The obtained shampoo was excellent in foamability and bubble durability, and its bubble was smooth.

[0034]

## [Table 3]

(Component) (% of the weight)

Polyoxyethylene lauryl ethereal sulfate Na (EO=2.5) 15 diamine salt (a general formula (1) -- setting --  $X_1=X_2=X_3=X_4=H$  --)  $A_1=A_2=H$ ,  $m=n=1$ , the thing of  $Y=Cl$  3 Amide amino acid triethanolamine 1.5 Silicone emulsion 3 3.0 Diaryl quarternary ammonium salt / acrylamide copolymer 4 0.5 pH regulator Optimum dose Coloring matter Optimum dose Perfume Optimum dose Antiseptics Optimum dose Water Balance 100 3:BY 22-029 (Dow Corning Toray Silicone make) 4: MAKOTO 550 (Merck Co. make)

## [0035] Example 4 (body shampoo)

The body shampoo of the presentation shown below was manufactured with the conventional method. The obtained body shampoo was excellent in foamability and bubble durability, and its bubble was smooth.

## [0036]

## [Table 4]

(Component) (% of the weight)

A glycolic-acid mono-lauryl amidosulfuric acid potassium ( $CH_3(CH_2)_9CH_2CH_2NHCOCH_2OSO_3K$ ) 20 Diamine salt (it sets to a general formula (2) and is the thing of  $X_1=X_2=X_3=X_4=H$ ,  $A_1=OH$ ,  $A_2=H$ ,  $m=n=1$ , and  $Y=Cl$ ) 2 Distearic acid ethylene glycol 1 pH regulator Optimum dose Coloring matter Optimum dose Perfume optimum dose Water Balance 100 [0037] Example 5 (shampoo)

The shampoo of the presentation shown below was manufactured with the conventional method. The obtained shampoo was excellent in foamability and bubble durability, and its bubble was smooth.

## [0038]

## [Table 5]

(Component) (% of the weight)

Polyoxyethylene lauryl ethereal sulfate Na (EO=2.5) 10 diamine salt (a general formula (2) -- setting --  $X_1=X_2=CH_3$  and  $X_3=X_4=H$  --)  $A_1=A_2=H$ ,  $m=n=1$ , the thing of  $Y=Cl$  2 Alkyl sulfo succinic-acid Na 5 Cation-ized cellulose 1 22d 0.3 pH regulator Optimum dose Coloring matter Optimum dose Perfume Optimum dose Water Balance 100 [0039]

[Effect of the Invention] A foam increasing agent does not need to be used for the cleaning agent constituent of this invention, it is excellent in foamability and bubble durability, and has creamy and good foam quality.

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[Translation done.]